Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

A PRELIMINARY STUDY OF THE GENUS LAMPROSPORA

FRED J. SEAVER

(WITH PLATE 114, CONTAINING 13 FIGURES)

In a previous paper,[1] the writer has called attention to some of the difficulties in the study of the present genus and in the same paper described two new species. The accumulation of additional data regarding the various species of the genus together with the collection of several apparently undescribed species has led the writer to make a preliminary study of the genus in North America. One of the most conspicuous features of many of the plants of the genus is their small size, many of them being one millimeter or less in diameter. For this reason many of the species have apparently been overlooked and even the best known are not often collected. While the ground has been covered as thoroughly as possible at the present time, it is not likely that the following list contains nearly all of the species occurring in North America.

About half of the species of the genus have sculptured spores and the nature of the sculpturing in such species furnishes one of the most valuable diagnostic characters. In many of the old descriptions the spores were simply described as rough or smooth with no definite information as to the exact nature of these roughenings. In the present paper especial attention has been given to a study of these spore characters. In most cases these studies have been based on fresh material collected by the writer. In a few cases we have been compelled to rely on dried specimens. An attempt has been made to bring out these characters in the accompanying plate.

The genus as treated here is used in rather a broader sense than the genus *Barlaea* of Saccardo, being made to include the genus *Detonia,* which, so far as I am able to judge, differs only in the larger size of the plants. The chief object of the present paper is to call attention to the number and variety of the species of the genus with the hope that these plants may receive more attention from collectors than they have formerly.

---

[1] MYCOLOGIA 4: 45–48. 1912.

LAMPROSPORA De-Not. Comm. Critt. Ital. **1**: 388. 1864

Crouania Fuckel, Symb. Myc. 320. 1869. Not *Crouania* Agardh. 1842.
Plicaria Fuckel, Symb. Myc. 325. 1869.
Barlaea Sacc. Syll. Fung. **8**: 111. 1889. Not *Barlaea* Reich. 1877.
Detonia Sacc. Syll. Fung. **8**: 105. 1889.
Plicariella (Sacc.) Lindau in E. & P. Nat. Pfl. **1**^{1}: 179. 1897.
Barlaeina Sacc. Syll. Fung. **14**: 30. 1899.
Pulvinula Boud. Hist. Class. Discom. 69. 1907.

Plants small or medium sized (.5 mm. to 3 cm. in diameter), concave, plane or slightly convex, sessile, usually bright colored, some shade of red, orange or yellow, more rarely pallid or dark colored, purple or brownish-black, externally smooth or verrucose but never clothed with well-developed hairs, substance fleshy, hymenium often roughened with the protruding asci; asci 8-spored, operculate; spores comparatively large, at first globose or subglobose, and smooth, at maturity often sculptured (spinulose, verrucose, reticulate, tuberculate or annulate), or remaining permanently smooth, hyaline or more rarely faintly colored yellowish or smoky-brown; paraphyses filiform or clavate, straight or curved.

Type species, *Ascobolus miniatus* Crouan.

KEY TO THE SPECIES

- Plants small, not exceeding 5 mm. in diameter (usually 1 or 2 mm.).
  - Spores rough (reticulate, spinulose, verrucose, tuberculate, or annulate).
    - Spores marked with ridges.
      - Ridges giving rise to reticulations (net-like markings over the surface).
        - Reticulations shallow, barely roughening the surface of the spore.
          - Spores at maturity 20–22 μ in diameter, ridges of reticulations about 1 μ thick. 1. *L. Crouani.*

Spores at maturity 12–15 μ in diameter, reticulations very delicate, scarcely more than lines over the surface of the spore.	2. *L. dictydiola.*
Reticulations deep, extending 2 μ or more beyond the periphery of the spore and appearing as a broad band about its surface.	3. *L. areolata.*
Ridges not giving rise to reticulations.	
Ridges usually curved and extending in various directions as in some species of *Ascobolus.*	4. *L. ascoboloides.*
Ridges giving rise to two distinct rings about the spore.	5. *L. annulata.*
Spores not marked with ridges.	
Spores covered with spines.	
Plants not exceeding 1 mm. in diameter, spines short, blunt.	6. *L. spinulosa.*
Plants at maturity 3–5 mm. in diameter, spines long and very sharp.	7. *L. Crec'hqueraultii.*
Spores covered with warts or tubercles.	
Tubercles large, twelve or rarely fourteen or fifteen about the circumference of the spore.	
Individual tubercles not rough.	8. *L. tuberculata.*
Individual tubercles covered with minute roughenings, giving them a translucent appearance.	9. *L. Maireana.*
Tubercles small, about twenty or more in the circumference of the spore.	
Spores subglobose, on bark among moss.	10. *L. Wrightii.*
Spores perfectly globose, on soil.	
Plants pale orange.	11. *L. tuberculatella.*
Plants violaceous.	12. *L. amethystina.*
Spores smooth.	
Plants pale orange.	
About 3 mm. in diameter at maturity, crowded, on burnt ground.	13. *L. carbonaria.*
About 1 mm. or less in diameter, scattered, on damp soil.	14. *L. haemastigma.*
Plants bright red.	
Several mm. in diameter, spores 15–18 μ in diameter, on damp soil.	15. *L. Constellatio.*
Less than 1 mm. in diameter, spores 8–9 μ in diameter, on foliage of *Sequoia.*	16. *L. gemma.*
Plants pallid or creamy.	17. *L. discoidea.*

- Plants large, usually 5 mm. or more in diameter.
  - Plants dark colored, purple or brown to blackish.
    - Brown or blackish, occurring on burnt ground.
      - Spores rough.
        - Plants externally rough, spores about 18 μ in diameter. 18. *L. trachycarpa.*
        - Plants externally smooth, spores about 9 μ in diameter. 19. *L. nigrans.*
      - Spores smooth. 20. *L. leijocarpa.*
    - Plants dark purple. 21. *L. Planchonis.*
  - Plants bright colored, orange.
    - Spores rough. 22. *L. lobata.*
    - Spores smooth. 23. *L. polytrichina.*

1. **Lamprospora Crouani** (Cooke)

Ascobolus miniatus Crouan, Ann. Sci. Nat. IV. **10**: 197. 1858.
Not *A. miniatus* Preuss, Linnaea **24**: 147. 1851.
Ascobolus Crouani Cooke, Jour. Bot. **2**: 151. 1864.
Peziza Crouani Cooke, Grevillea **3**: 31. 1874.
Crouania miniata Fuckel, Symb. Myc. 320. 1869.
Lamprospora miniata De-Not. Comm. Critt. Ital. **1**: 388. 1864.
Aleuria Crouani Gill. Champ. Fr. Discom. 50. 1878.
Barlaea miniata Sacc. Syll. Fung. **8**: 111. 1889.

Plants gregarious, or crowded, at first subglobose, expanding and becoming plane or with the hymenium a little concave with a slightly elevated and often fringe-like margin, bright red, without and within, margin lighter, almost white, 1–5 mm. in diameter (usually about 3 mm. at maturity); asci cylindric or subcylindric, about 20–22 μ in diameter; spores 1-seriate, at first smooth and usually containing one large oil-drop, at maturity becoming deli- covering the entire surface of the spore, meshes of the reticula- cately roughened, roughenings taking the form of reticulations tions 2–4 μ, rarely 5 or 6 μ in diameter, ranging from 3–6-sided, with the sides usually of unequal length but occasionally giving rise to almost perfect hexagonal figures, ridges very even and delicate, less than 1 μ broad, the ridges giving rise to a perfect unbroken net-work about the spore and very shallow as indicated by the roughenings about the periphery of the spore, entire spore 15–22 μ in diameter (usually about 20–22 μ at maturity), hyaline; paraphyses thickened above and filled with orange granules.

On damp soil usually among moss plants.

Type locality: Brest, France.

Distribution: New York to Colorado; also in Europe.

ILLUSTRATIONS: Ann. Sci. Nat. IV. **10**: *pl. 13, f. 44–47;* Cooke, Mycogr. *pl. 5, f. 17;* Gill. Champ. Fr. Discom. *pl. 52, f. 2.*

Crouan's type has not been seen but authentic specimens from M. C. Cooke's collection have been examined and found to agree with American specimens referred to this species. One collection in great abundance was made near New York City during the past season.

2. LAMPROSPORA DICTYDIOLA Boud. Hist. Class. Discom. 68. 1907

Plants gregarious or scattered, not crowded, expanding with the hymenium, becoming plane or nearly so and bordered with a delicate, ragged, fringe-like margin and more or less pitted and roughened, entirely orange without and within, about 1 mm. in diameter (in the living specimens examined); asci cylindric or subcylindric, about 18–20 μ in diameter and of variable length; spores 1-seriate, at first smooth and usually with one large oil-drop, at maturity becoming very delicately reticulate, meshes of the reticulations 1 μ or less in diameter and ridges appearing as single lines (when examined with a one sixth objective); entire spore 12–15 μ in diameter, hyaline; paraphyses enlarged above reaching a diameter of 5 μ, nearly straight or occasionally a little curved, never hooked as in some related species.

On charcoal which has been overgrown with mosses.

TYPE LOCALITY: Montmorency, France.

DISTRIBUTION: New York; also in Europe.

ILLUSTRATION: Boud. Ic. Myc. *pl. 403.*

Our specimens conform well with the illustration of this species by Boudier. The species has been collected twice but in each case not over two or three plants were found.

3. LAMPROSPORA AREOLATA Seaver, Mycologia 4: 48. 1912

Plants gregarious, small, .5–1 mm. in diameter, at first globose, opening rather irregularly, at maturity with the hymenium plane or slightly convex, more or less roughened by the protruding asci, orange to bright red; asci cylindric, 15–22 μ in diameter and of variable length, tapering below into a stem-like base; spores 1-seriate, at first smooth, with usually one large oil-drop, becoming rough at maturity, roughenings taking the form of deep areolations, areolae 3–5 μ in diameter, 3–6-sided, often forming nearly perfect hexagonal figures or with the sides of irregular length, 2–3 μ deep as indicated by the projecting ridges about the periphery of the spore, ridges thin scarcely more than 1 μ thick, entire spore including projections 18–20 μ in diameter, hyaline; paraphyses strongly thickened above.

On damp soil among mosses and algae.

TYPE LOCALITY: Yonkers, New York.

DISTRIBUTION: New York to Connecticut.

ILLUSTRATIONS: Mycologia 4: *pl. 57, f. 5–8.*

Since the publication of this species, it has been frequently collected about New York City. The largest plants seen are not over 1 mm. in diameter. The peculiar spore characters mentioned in the original description have been found to be constant in all of the specimens examined.

4. **Lamprospora ascoboloides** sp. nov.

Plants gregarious, at first globose and partially buried, gradually opening with the hymenium at first slightly concave, gradually becoming plane and at maturity convex with the margin indistinct, usually not exceeding 1 mm. in diameter and often smaller, closely nestling in little depressions in the substratum but never buried, entirely orange, externally slightly floccose, hymenium roughened by the protruding asci which are comparatively large, finally becoming pitted as a result of the collapsing of the empty asci, the hymenium often collapsing when dry becoming concave; asci cylindric-clavate, about 175–225 × 18–20 μ; spores at first smooth with one or two oil-drops gradually becoming rough, increasing in size, at maturity covered with irregular ridge-like markings; ridges straight or more often curved, several often parallel or extending in various directions and sometimes at right angles, occasionally branched, rarely a few running together giving rise to irregular and imperfect reticulations over a part of the spore but never completely or perfectly reticulate, ridges nearly 2 μ thick, markings resembling those of certain species of *Ascobolus,* 15–18 μ in diameter (usually about 17 μ at maturity), hyaline; paraphyses clavate, 5–6 μ in diameter at their apices.

Type collected on soil in Portland, Connecticut.

DISTRIBUTION: Connecticut, New York and Virginia.

The species has been frequently collected about New York City since the original collection was made in Portland, Connecticut. The species is distinguished by the peculiar *Ascobolus*-like markings of the spores.

5. **Lamprospora annulata** sp. nov.

Plants gregarious but not crowded, at first globose and partially immersed in the substratum becoming expanded and with the hymenium plane or nearly plane and more or less pitted and roughened, pale orange, .5 mm. to nearly 1 mm. in diameter; asci cylindric or subcylindric, rather abruptly attenuated below into a short much contorted pedicel, entire ascus about 200 μ long and about 20 μ in diameter, at first almost filled with the spores, in older asci the lower part stretching and becoming about equal in length to the spore-bearing portion; spores 1-seriate from the first, perfectly globose and smooth when young and containing a few small oil-drops and granules, 12–14 μ in diameter, with two small rings appearing at an early stage about the proximal and distal sides of the spore giving rise to four small circles where the rings pass about the periphery of the spore, rings increasing in size until they reach a thickness of about 3 μ, the surface of the spore becoming minutely verrucose with age, the rings at maturity giving the spore a short cylindric appearance with the axis of the cylinder parallel with the ascus, entire spore when mature about 16–18 μ in diameter, rings of about the same diameter and nicely fitted over the opposite sides of the spore, the two rings usually parallel but occasionally one of them shifted out of its normal position, hyaline; paraphyses thickened above and densely filled with large granules, about 5 μ in diameter at the widest point.

On soil among moss and algae.

TYPE LOCALITY: Portland, Connecticut.

DISTRIBUTION: New York and Connecticut.

In addition to the type of this species which was collected in Portland, Connecticut, August, 1913, one collection was later made near New York City. This last collection consisted of three plants each less than one millimeter in diameter. The spore characters were identical with those of the Connecticut specimen.

6. **Lamprospora spinulosa** sp. nov.

Plants gregarious, minute, usually not exceeding 1 mm. in diameter and often less, at first closed and nearly globose, gradually expanding at maturity with the hymenium slightly convex and surrounded by an irregular fringe-like margin, externally slightly floccose, hymenium roughened by the asci which protrude often half their length above the paraphyses, collapsing after discharging their spores; asci clavate-cylindric, about 200 × 18–20 μ; spores at first smooth with one large oil-drop, becoming delicately roughened, at maturity with short stout spines, about 1 μ in diameter and 2–3 μ in length, becoming adpressed when dry, entire spore about 15–20 μ in diameter (including spines), hyaline; paraphyses clavate, septate and granular within.

On soil among moss. New York Botanical Garden, 1912.

This plant which is 1 mm. or less in diameter has often been collected about New York City. The spores as well as the external characters of the species are very different from *L. Crec'hqueraultii* another spinulose-spored species. I find no description of the species.

7. LAMPROSPORA CREC'HQUERAULTII (Crouan) Boud. Ic. Myc. expl. pl. 11. 1909

Ascobolus Crec'hqueraultii Crouan, Ann. Sci. Nat. IV. **10**: 194. 1858.

Peziza modesta Karst. Act. Fauna Fl. Fenn. **10**: 122. 1869.

Peziza echinosperma Peck, Ann. Rep. N. Y. State Mus. **24**: 95. 1872.

Peziza auriflava Cooke, Mycogr. 16. 1875.

Aleuria auriflava Gill. Champ. Fr. Discom. 50. 1879.

Mollisia Crec'hqueraultii Gill. Champ. Fr. Discom. 118. 1882.

Crouania asperella Rehm, Hedwigia **24**: 226. 1885.

Humaria Crec'hqueraultii Quél. Enchir. 288. 1886.

Barlaea Crec'hqueraultii Sacc. Syll. Fung. **8**: 113. 1889.

Barlaea asperella Sacc. Syll. Fung. **8**: 113. 1889.

Barlaea modesta Sacc. Syll. Fung. **8**: 113. 1889.

Humaria echinosperma Sacc. Syll. Fung. **8**: 130. 1889.

Plicariella modesta Lindau in E. & P. Nat. Pfl. **1**^{2}: 180. 1897.

Plants gregarious, 2–5 mm. in diameter (usually 2 or 3), entirely smooth without and within, hymenium at first slightly concave becoming plane or more often convex, margin indistinct in mature plants and entire plant often becoming irregular in form, very pale orange externally and internally, fading to dirty yellowish-white in dried specimens; asci cylindric, or subcylindric, about 300–325 × 27 μ protruding above the hymenium; spores 1-seriate, at first smooth, at maturity spinulose, globose, or rarely very slightly elongated, spines conspicuous, irregular in length, broad at the base and tapering to a very sharp point at the apex, often 2 or 3 μ long, in dried specimens becoming bent and adpressed to the sides of the spore but regaining their normal form when wet, entire spore 18–22 μ in diameter (including spines), hyaline; paraphyses thickened at their apices.

On clayey soil.

TYPE LOCALITY: Europe.

DISTRIBUTION: New York to Delaware, West Virginia and Colorado; also in Europe.

ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. **24**: *pl. 3, f. 10–13;* Ann. Sci. Nat. IV. **10**: *pl. 13, f. 12–15;* Boud. Ic. Myc. *pl. 404, 405;* Bull. Lab. Nat. Hist. State Univ. Iowa **6**: *pl. 12, f. 4;* Cooke, Mycogr. *pl. 6, f. 22, 23.*

EXSICCATI: Ellis, N. Am. Fungi *840* (as *Peziza echinosperma* Peck); Ellis, N. Am. Fungi *841* (as *Peziza modesta* Karst.); Clements, Crypt. Form. Colo. *115* (as *Detonia modesta*).

In addition to the synonyms previously published, the writer has examined cotype specimen of *Peziza echinosperma* Peck and finds it to be identical with the above.

8. LAMPROSPORA TUBERCULATA Seaver, Mycologia **4**: 47. 1912

Plants gregarious in small clusters, not crowded but rarely with two or three in close contact, at first globose and almost buried in the sandy soil on which they grow, when young tapering above or subconic in form, with the hymenium gradually expanding and at maturity plane or nearly so, often with a fringe-like border and roughened by the protruding asci which appear above as minute white spines, superficial but with the base still nestling in the substratum, about .5 mm. in diameter or rarely attaining a diameter of nearly 1 mm.; asci cylindric or subcylindric, slightly narrowed near the apex, and tapering below into a stem-like base, 25–28 μ in diameter and about 275–300 μ long; spores 1-seriate, at first smooth and usually with one large oil-drop, gradually becoming rough, at maturity very coarsely tuberculate, tubercles covering the surface of the spore and appearing about its margin like great lumps often projecting further in one place than another giving the spore an irregular outline, individual tubercles about 3–4 μ in diameter, giving rise to 12 or rarely 14 or 15 lobes about the periphery of the spore, entire spore 18–20 μ in diameter at maturity, hyaline; paraphyses enlarged above attaining a diameter of 6 μ, filled with orange granules.

On soil in open places among mosses and algae.

TYPE LOCALITY: Woods near Yonkers, New York.

DISTRIBUTION: New York to Virginia.

ILLUSTRATIONS: Mycologia **4**: *pl. 57, f. 1–4.*

Numerous collections of this species have been made about New York City during the past season. The coarse tuberculate marking of the spores is a constant feature in all of the specimens examined.

9. **Lamprospora Maireana** sp. nov.

Plants gregarious, at first globose, becoming expanded, at maturity with the hymenium plane or slightly concave, entirely pale orange without and within, reaching a diameter of about 2 mm.; asci cylindric or subcylindric, gradually tapering below into a stem-like base, having a diameter of 30 μ at the broadest point and reaching a length of 300–325 μ; spores 1-seriate, perfectly globose, at first smooth, at maturity becoming roughened, roughenings taking the form of tubercles which are as large as 3–5 μ in diameter and appearing as scallops about the periphery of the spore, the tubercles bearing secondary roughenings which give to each a minutely roughened surface, and giving the whole spore a translucent effect, entire spore at maturity, about 23 μ in diameter, subhyaline; paraphyses strongly thickened at their apices, reaching a thickness of 8 μ.

On the ground among moss and algae.

TYPE LOCALITY: Algiers, North Africa.

DISTRIBUTION: New York; also in North Africa.

EXSICCATI: Maire, Myc. Bor. Africana *22* (as *L. tuberculata* Seaver).

This species was distributed by R. Maire as *L. tuberculata.* Close comparison however shows the two to be quite different. The plants are larger, the spores larger and the sculpturing of the spores quite different. The warts in the African species are not so prominent as in *L. tuberculata* and the secondary roughening of the tubercles does not occur in *L. tuberculata.* A single local collection has been made by the writer in which the spores agree with the specimen collected by Maire so that the species probably occurs in North America.

10. **Lamprospora Wrightii** (Berk. & Curt.)

Peziza Wrightii Berk. & Curt. Ann. Mag. Nat. Hist. III. **15**: 444. 1865.

Barlaea Wrightii Sacc. Syll. Fung. **8**: 112. 1889.

Humaria Wrightii Boud. Hist. Class. Discom. 68. 1907.

Plants gregarious or scattered, at first globose, becoming expanded with the hymenium plane or slightly concave, surrounded by a delicate irregular elevated margin giving it a fringe-like border, entirely pale orange, slightly paler externally and minutely roughened; asci cylindric or slightly clavate; spores usually 1-seriate or irregularly crowded, globose or more often just slightly ellipsoid, at first smooth, with one or sometimes several oil-drops, becoming roughened at maturity, roughenings taking the form of small wart-like bodies, which are usually rather widely scattered over the surface of the spore, 15–17 μ in diameter, hyaline; paraphyses strongly enlarged above, filled with granules.

On bark of trees among moss.

TYPE LOCALITY: Bodelwyddan, Flintshire, Wales.

DISTRIBUTION: Alabama, Texas and Cuba; also in Europe.

ILLUSTRATIONS: Ann. Mag. Nat. Hist. III. **15**: *pl. 15, f. 16;* Boud. Ic. Myc. *pl. 399;* Cooke, Mycogr. *pl. 5, f. 18.*

The spores were originally described as echinulate but this may have been due to faulty observation since later students of the type describe the spores as verrucose. An Alabama specimen examined agrees perfectly with Boudier's illustration of this species.

11. **Lamprospora tuberculatella** sp. nov.

Plants gregarious but never crowded, often five or six plants in the space of 1 cm., at first globose, opening at the top and gradually expanding, at maturity discoid, convex above and floccose with the asci which protrude above the hymenium half their length appearing as many minute white spines, whole plant pale orange, .3–.5 mm. in diameter or rarely reaching a diameter of 1 mm.; asci cylindric or subcylindric; spores 1-seriate, at first smooth and with one large oil-drop near the center, increasing in size as they mature, at maturity about 20 μ in diameter and covered with small tubercle-like markings, tubercles covering the surface of the spore and appearing beyond the periphery of the spore like those of *L. tuberculata* but much smaller, about twenty to twenty-five around the circumference of the spore, hyaline; paraphyses enlarged above and filled with orange granules.

On soil among moss near Yonkers, New York.

This species has been frequently collected and much attention has been given to a study of the spore characters. As might at first be thought, the small wart-like markings have never been found to intergrade with those of *L. tuberculata* in which they are twice as large.

12. **Lamprospora amethystina** (Quél.)

Humaria Personii amethystina Quel. Fr. Acad. Sci. **14**: 451. 1885.

Barlaea amethystina Sacc. Syll. Fung. **8**: 116. 1889.

Plants gregarious, purplish, without and within, with a delicate white border, hymenium a little concave, reaching a diameter of 2 mm.; asci cylindric or subcylindric; spores 1-seriate, at first smooth, becoming rough at maturity, spore markings similar to those of *L. tuberculatella*, hyaline; paraphyses a little enlarged at their apices.

On the ground among moss.

TYPE LOCALITY: Jura, France.

DISTRIBUTION: Iowa; also in Europe.

ILLUSTRATIONS: Bull. Lab. Nat. Hist. State Univ. Iowa **6**: *pl. 12, f. 3.*

The only specimens of this species seen were those collected by the writer in Iowa. The species is distinguished by its color.

13. **Lamprospora carbonaria** (Fuckel)

Crouania carbonaria Fuckel, Symb. Myc. (Nachtrag) 64. 1871.

Peziza sanguinaria Cooke, Grevillea **3**: 31. 1874.

Barlaea carbonaria Sacc. Syll. Fung. **8**: 112. 1889.

?Lamprospora carbonicola Boud. Hist. Class. Discom. 68. 1907.

Plants gregarious or crowded, 1–3 mm. in diameter, globose, becoming expanded with the hymenium plane or slightly concave and margin even or wavy, plants often irregular in form from mutual pressure, entirely pale orange, hymenium nearly even or slightly floccose; asci cylindric-clavate, about 225 × 18–20 μ; spores perfectly globose and smooth with one oil-drop varying in size but often almost filling the spore, entire spore 15–18 μ in diameter, hyaline; paraphyses filiform or slightly enlarged at their apices, extending high above the asci and curved or hooked, about 3–4 μ in diameter at their apices.

On soil among moss plants in a place which has been recently burned but subsequently partially overgrown with moss.

TYPE LOCALITY: Oestrich and Budenheim woods, Germany.

DISTRIBUTION: New York; also in Europe.

Through the courtesy of Dr. Farlow, I have been permitted to examine spores of cotype material of this species. Specimens collected in the New York Botanical Garden agree with Fuckel's plants so far as we can judge from dried specimens. The species has been seen by the writer only once but occurred in good quantity.

14. **Lamprospora haemastigma** (Hedw.) ?

Octospora haemastigma Hedw. Laub-Moose **2**: 17. 1788.
Pulvinula haemastigma Boud. Hist. Class. Discom. 70. 1907.

Plants rather thickly gregarious, rarely two or three in close contact, at first globose, becoming expanded with the hymenium plane or slightly concave, entirely pale yellow (becoming brighter in dried specimens), about 1 mm. in diameter; asci cylindric or subcylindric, 20–23 μ in diameter and as long as 300 μ; tapering below into a stem-like base; spores 1-seriate, smooth, usually with one large oil-drop, about 20 μ in diameter, hyaline; paraphyses very slender, strongly curved at their apices and scarcely thickened above, about 2 μ in diameter at the thickest point, densely filled with yellow granules.

On damp soil among moss.

TYPE LOCALITY: Europe.

DISTRIBUTION: New York; also in Europe.

ILLUSTRATIONS: Hedw. Laub-Moose **2**: *pl. 5, f. 1–5;* Boud. Ic. Myc. *pl. 406.*

Our plants agree well with Boudier's illustrations of what he takes to be Hedwig's species. It also agrees fairly well with Hedwig's illustration although the plants are somewhat paler. The species differs from *L. Constellatio* by the smaller size of the plants and much paler color.

15. **Lamprospora Constellatio** (Berk. & Br.)

Peziza Constellatio Berk. & Br. Ann. Mag. Nat. Hist. IV. **17**: 142. 1876.

Leucoloma Constellatio Rehm, Ber. Naturh. Ver. Augsburg **26**: 5. 1881.

Pulvinula Constellatio Boud. Bull. Soc. Myc. Fr. **1**: 107. 1885.

Aleuria Constellatio Gill. Champ. Fr. Discom. 207. (1888?)

Barlaeina Constellatio Morgan, Jour. Myc. **8**: 188. 1902.

Plants gregarious or scattered, at first globose, becoming expanded and plane or slightly concave, 1–5 mm. in diameter, hymenium bright red, color becoming brighter in dried specimens, often almost scarlet, externally lighter; asci cylindric or subcylindric, about 250–300 × 20 µ; with a long stem-like base; spores smooth with one large oil-drop often surrounded by numerous smaller ones, hyaline, 15–20 µ (usually about 18) in diameter, hyaline; paraphyses filiform, only slightly thickened at the ends and very much hooked and curved, entirely filled with red granules and sparingly septate.

On bare ground in rich soil.

TYPE LOCALITY: Addington, Kent, Great Britain.

DISTRIBUTION: New Jersey to Ontario, Colorado and Jamaica; also in Europe.

ILLUSTRATIONS: Boud. Ic. Myc. *pl. 407;* Cooke, Mycogr. *pl. 21, f. 81.*

EXSICCATI: Ellis & Ev. N. Am. Fungi *2036.*

I have not seen the type of this species but American specimens conform well with European illustrations and exsiccati. The species was frequently collected by the writer in the Rocky Mountains and has been less frequently collected in the East.

16. **Lamprospora gemma** (Phill.)

Peziza gemma Phill. Grevillea **7**: 21. 1878.

Barlaea gemma Sacc. Syll. Fung. **8**: 112. 1889.

Plants gregarious, sessile, fleshy, subturbinate, finally expanded with the hymenium plane or slightly concave, asci cylindric; spores 1-seriate, globose, smooth, hyaline, about 8 µ in diameter; paraphyses filiform, very slender and branched, straight or more or less curved at their apices.

On decaying foliage of *Sequoia sempervirens.*

TYPE LOCALITY: California.

DISTRIBUTION: Known only from the type locality.

ILLUSTRATION: Cooke, Mycogr. *pl. 111, f. 398.*

A specimen of this species collected by Harkness in California has been examined. The species differs from *L. Constellatio* in the much smaller size of the spores. The plants are also much smaller.

17. **Lamprospora discoidea** (P. Henn. & E. Nym.)

Barlaea discoidea P. Henn. & E. Nym. Monsunia **1**: 33. 1900.
Barlaeina discoidea Sacc. Syll. Fung. **16**: 710. 1902.

Plants scattered or gregarious, sessile, at first subglobose, expanding leaving the margin elevated and hymenium slightly concave, but soon becoming plane and later strongly convex, minutely roughened by the protruding asci, entire plant reaching a maximum of 2 mm. in diameter (usually 1 mm. in diameter at maturity), color white or grayish white or with a slight tinge of yellow or cream; asci subcylindric above, tapering below into a slender stem-like base which is usually forked, about 200–250 × 20 μ; spores 1-seriate, smooth, with one large oil-drop which nearly fills the spore, rather thick-walled, 15–20 μ in diameter (usually about 17 μ), hyaline; paraphyses slender, slightly enlarged upwards, about 5 μ in diameter at their apices.

On rather sandy soil or among moss.

TYPE LOCALITY: Java.

DISTRIBUTION: New York; also in Asia.

The pale color is the distinguishing character of this species, which was found to be very common in the New York Botanical Garden during the past season. It is very different in appearance from any of the other species here described.

18. **Lamprospora trachycarpa** (Curr.)

Peziza trachycarpa Curr. Trans. Linn. Soc. **24**: 493. 1864.
Peziza scabrosa Cooke, Mycogr. 170. (1879?)
Discina trachycarpa Karst. Act. Fauna Fl. Fenn. **2**: 113. 1885.
Plicaria trachycarpa Boud. Bull. Soc. Myc. Fr. **1**: 102. 1885.
Aleuria trachycarpa Gill. Champ. Fr. Discom. 207. (1888?)
Detonia trachycarpa Sacc. Syll. Fung. **8**: 105. 1889.

Phaeopezia scabrosa Sacc. Syll. Fung. **8**: 472. 1889.
Plicariella trachycarpa Rehm, Rabenh. Krypt. Fl. **1**^{3}: 996. 1896.

Plants gregarious or densely crowded, often forming continuous masses extending over many cm., at first globose, gradually opening above and becoming shallow cup-shaped with the margin incurved and elevated or more rarely closely adhering to the substratum, regular in form or cochleate and becoming very irregular especially when closely crowded, hymenium smooth or convolute, dark reddish-brown or slightly olivaceous, becoming black in dried specimens, externally lighter colored and rough, often densely verrucose, 5 mm. to 2 cm. in diameter; asci cylindric or subcylindric, about 15–18 μ in diameter and of variable length but often reaching 250–300 μ; spores 1-seriate, at first smooth, becoming rough, roughenings taking the form of small tubercles or often elongated, appearing like very short interrupted ridges, becoming pale yellowish or smoky at maturity, about 15–18 μ in diameter; paraphyses thickened above and adhering more or less together at their apices, yellowish-brown.

On burnt ground and charcoal beds.

TYPE LOCALITY: Ascot Heath, Great Britain.

DISTRIBUTION: New York to Colorado; also in Europe.

ILLUSTRATIONS: Boud. Ic. Myc. *pl. 300;* Bull. Lab. Nat. Hist. State Univ. Iowa **6**: *pl. 14, f. 1;* Cooke, Mycogr. *pl. 67, f. 257;* Trans. Linn. Soc. **24**: *pl. 51, f. 3, 5.*

Cotype material of this species has been examined. Also cotype material of *Peziza scabrosa* Cooke has been examined and found to be identical. The species is common.

19. **Lamprospora nigrans** (Morgan)

Peziza nigrans Morgan, Jour. Cin. Soc. Nat. Hist. **18**: 43. 1895.
Detonia nigrans Sacc. Syll. Fung. **14**: 747. 1899.

Plants at first cup-shaped and circular in outline, becoming plane and more or less irregular, hymenium black or blackish, externally smoky-pallid and smooth, attached to the soil by slender fibers, reaching a diameter of 1 or 2 cm.; asci cylindric or subcylindric and much elongated; spores 1-seriate, at first smooth, becoming rather coarsely warted and reaching a diameter of about 9 μ, subhyaline to smoky-brown; paraphyses thickened above and dark colored.

On burnt ground.

TYPE LOCALITY: Preston, Ohio.

DISTRIBUTION: Known only from the type locality.

The species is distinguished from *L. trachycarpa* to which it is closely related by the smooth exterior of the plants and the very small size of the asci and spores. Cotype material has been studied.

20. **Lamprospora leiocarpa** (Curr.)

Peziza leiocarpa Curr. Trans. Linn. Soc. **24**: 493. 1864.
Plicaria foveata Fuckel, Symb. Myc. 326. 1869.
Detonia leiocarpa Sacc. Syll. Fung. **8**: 105. 1889.
Detonia foveata Sacc. Syll. Fung. **8**: 105. 1889.
Plicaria leiocarpa Rehm, Rabenh. Krypt. Fl. **1**^{3}: 994. 1896.

Plants gregarious, at first globose and closed, opening and becoming shallow cup-shaped, at length almost entirely flattened, and irregularly undulated and lobed, hymenium olivaceous-brown; asci clavate, becoming subcylindric; spores at first irregularly 2-seriate, becoming 1-seriate at maturity, globose, hyaline, remaining entirely smooth, usually with one large oil-drop, about 10–12 μ in diameter; paraphyses enlarged above and adhering together.

On burnt ground.

TYPE LOCALITY: Ascot Heath, Great Britain.

DISTRIBUTION: California; also in Europe.

ILLUSTRATIONS: Trans. Linn. Soc. **24**: *pl. 51, f. 4, 6;* Boud. Ic. Myc. *pl. 304.*

Cotype material of this species has been examined. The only American specimens examined were collected by Dr. Harkness in California. This species differs from *L. trachycarpa,* which it resembles, in having permanently smooth spores.

21. **Lamprospora Planchonis** (Dun.)

Plicaria Planchonis Dun.; Boud. Bull. Soc. Myc. Fr. **3**: 92. 1887.

Plants gregarious or scattered, sessile, hemispherical or nearly plane, usually regular in form but occasionally irregularly contorted, margin rough, exterior of cups minutely roughened or warted, entire plant very dark purple, exterior almost black, hymenium a little lighter, flesh with transmitted light bright purple and both asci and paraphyses surrounded with purple coloring matter which can be partially extracted with water from the dried plants, 5–8 mm. in diameter; asci cylindric, with a slender stem, about 200 × 13–15 μ; spores 1-seriate, perfectly globose, at first hyaline with one and sometimes several oil-drops, becoming pale purplish (as are also the paraphyses and asci), smooth or very minutely roughened, at maturity about 10–12 μ in diameter; paraphyses clavate, about 6 μ in diameter at their apices, filled with purple granules.

On sandy soil by roadsides, hillsides and on sand-dunes.

TYPE LOCALITY: France.

DISTRIBUTION: Common in the Bermudas; also in Europe.

ILLUSTRATIONS: Bull. Soc. Myc. Fr. 3: *pl. 8;* Boud. Ic. Myc. *pl. 309.*

This little purple fungus is the commonest cup-fungus in the Bermudas, occurring by roadsides and on hillsides in pastures and open places. Numerous collections were made by Stewardson Brown, N. L. Britton and the writer during the winter of 1912. So far as I am aware, this is the first record of the species from North America. A closely related species, *Peziza Persoonii,* is said to differ in having rough spores. No specimen of the latter species has been seen by the writer from North America.

22. **Lamprospora lobata** (Berk. & Curt.)

Peziza lobata Berk. & Curt. Jour. Linn. Soc. **10**: 365. 1869.
Barlaea lobata Sacc. Syll. Fung. **8**: 117. 1889.

Plants scattered, and shallow cup-shaped to nearly plane or with the margin slightly elevated and undulated or lobed; hymenium dull orange, paler below, about 5–12 mm. in diameter; asci cylindric or subcylindric, 15–18 μ in diameter and of variable length but usually about 250 μ; spores 1-seriate, at first smooth, becoming rough at maturity, roughenings consisting of four to six tubercles of variable size which appear beyond the periphery of the spore and with several more or less indistinct lines or bands extending across the surface of the spore in various directions resembling pieces of coarse twine wound about its surface, the inequality in the size of the tubercles giving the mature spore a rather irregular form, entire spore 12–15 μ in diameter, hyaline; paraphyses very slender, about 1–2 μ in diameter and scarcely enlarged at their apices.

On the ground.

TYPE LOCALITY: Cuba.

DISTRIBUTION: Known only from the type locality.

ILLUSTRATIONS: Cooke, Mycogr. *pl. 69, f. 265.*

A cotype specimen of this species has been studied. The species is well-marked by its size and by the peculiar markings of the spores, which are not mentioned in the original description.

23. **Lamprospora polytrichina** (Rehm)

Detonia polytrichina Rehm, Krypt. Fl. 1^3: 1269. 1896.

Plants gregarious, sessile, expanding, becoming nearly plane or shallow cup-shaped, margin entire and often wavy, reaching a diameter of 5 mm., hymenium bright orange, externally lighter. whitish and more or less pruinose; asci cylindric or subcylindric, gradually tapering near the base, reaching a length of 200–225 μ and about 17 μ thick near the apex; spores 1-seriate, entirely globose, with one or sometimes several oil-drops, smooth, hyaline, 15–17 μ in diameter; paraphyses slender, slightly enlarged above, straight or slightly curved.

On soil among moss, especially *Polytrichum.*

TYPE LOCALITY: Europe.

DISTRIBUTION: Minnesota; also in Europe.

ILLUSTRATIONS: Cooke, Mycogr. *pl. 13, f. 50.*

The only specimens of this species examined from America were those collected by Miss Hone in Minnesota (No. *938*). The species has been confused with *Peziza Polytrichi* Schum.

DOUBTFUL SPECIES

Peziza exasperata Berk. & Curt. Grevillea **3**: 152. 1874.

The plants are described as one-half inch across, externally warted and with the margin inflexed, spores rough and about 12 μ in diameter.

The species was collected in Alabama by Peters.

Peziza globifera Berk. & Curt. Jour. Linn. Soc. **10**: 366. 1869.

A Cuban species with smooth spores. My only knowledge of this and the preceding species is based on the examination of microscopic slide of the spores.

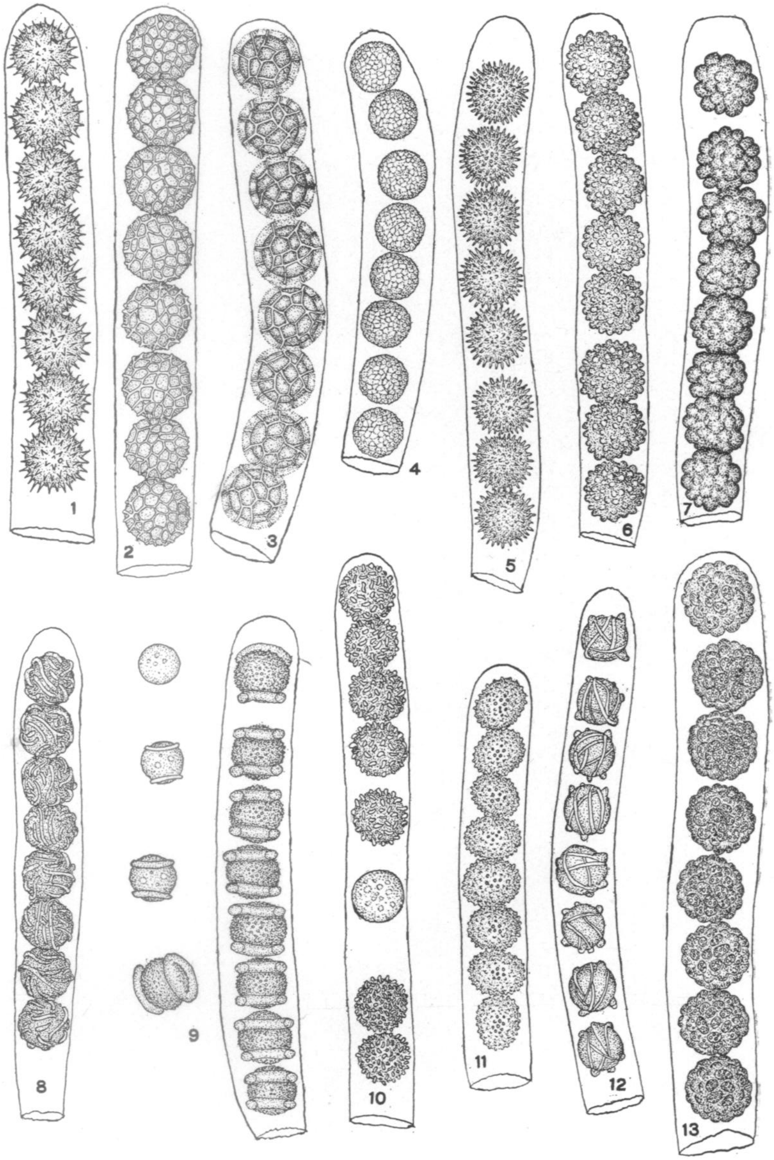
Barlaea lacunosa Ellis & Ev. Proc. Acad. Nat. Sci. Phila. **1894**: 347. 1895.

This species was described from material collected on the bark of some coniferous tree in Newfoundland. The type has been studied and both the habitat and general characters of the plant indicate that it is a *Pithya,* which genus is rather closely related to *Lamprospora.* Whether it is a distinct species I am unable to say. The plants are larger and more convolute than most specimens of *Pitya vulgaris* Fuckel, but some specimens of this species approach it in size. If it is not the same species, Ellis's plant is at least very closely related to *P. vulgaris.*

EXPLANATION OF PLATE CXIV

This plate contains spores of the following species of *Lamprospora* drawn with the aid of the camera lucida to a common scale.

1. *Lamprospora Crec'hqueraultii* (Crouan) Boud.
2. *Lamprospora Crouani* (Cooke) Seaver.
3. *Lamprospora areolata* Seaver.
4. *Lamprospora dictydiola* Boud.
5. *Lamprospora spinulosa* Seaver.
6. *Lamprospora tuberculatella* Seaver.
7. *Lamprospora tuberculata* Seaver.
8. *Lamprospora ascoboloides* Seaver.
9. *Lamprospora annulata* Seaver.
10. *Lamprospora trachycarpa* (Curr.) Seaver.
11. *Lamprospora Wrightii* (Berk. & Curt.) Seaver.
12. *Lamprospora lobata* (Berk. & Curt.) Seaver.
13. *Lamprospora Maireana* Seaver.



LAMPROSPORA